Comprehensive Statewide E9-1-1 Telecommunications Plan

presented to

North Carolina 9-1-1 Board

November 21, 2008

Agenda

- Introductions
- Three Year Plan
- Five Year Plan
- PSAP Findings and Analysis
- Carrier Findings and Analysis
- GIS Findings and Analysis
- Business Requirements Findings and Analysis
- Next Generation 9-1-1 Architecture
- Future Funding Analysis and Recommendations

Three Year Plan

- Understand the actual cost for providing 9-1-1 service in North Carolina.
- Implement a strategic planning process.
- Understand the design of existing North Carolina 9-1-1 systems.
- Establish a consistent and comprehensive training curriculum.
- Design, implement, and maintain a statewide 9-1-1 GIS/mapping system and database.
- Develop and maintain a centralized state repository for information about 9-1-1 and the communications industry.
- Provide 9-1-1 technical and operational expertise and project management assistance.

Five Year Plan

- Align 9-1-1 funding across communications service providers and cover all 9-1-1 systems expense items.
- Assess and correct PSAP space and environmental deficiencies to meet minimal requirements for the transition to NG9-1-1.
- Establish inter-selective router transfer capabilities and ALI database node interoperability.
- Deploy a centralized ALI database.
- Develop a statewide procurement process and catalog of 9-1-1 services and equipment.
- Develop 9-1-1 operational and technical requirements for Multi Line Telephone Service (MLTS).
- Research, evaluate, and coordinate deployment of applications to be integrated into NG9-1-1.

PSAP Findings and Analysis

- PSAP Data Collection – methodology and output
- PSAP Data Collection – data elements and survey details
- PSAP Data Analysis – 21 data elements

PSAP Data Collection – Methodology and Output

- Contacted all known primary and secondary PSAPs in each county
- Includes Reservation of Eastern Band of Cherokee Indians, military bases, colleges and universities
- Conducted on-site surveys, followed up with telephone interviews
- Output is documentation of PSAP facilities, with operational and technical data
- Warehoused in MS Access database
  - includes digital photographs of operations
  - equipment room facilities
  - PSAP boundary maps

PSAP Data Collection – Data Elements and Survey Details

1. **Identify the number of service lines**
2. **Identify the number of consoles (total positions, and staffed 24x7}**
3. Identify the number of consoles that are dispatch and/or call taking only
4. **Identify the number of PSAPs with EMD (Emergency Medical Dispatch) ability and the protocols (product) utilized**
5. **Identify the total number of 911 calls annually**
6. Identify the time factor of receipt to dispatch of 911 calls
7. Identify any PSAP training requirements
8. **Identify the revenue sources used for funding all PSAP operations and the total cost for PSAP operations (911 + all other operations)**
9. Identify the management protocol of the PSAP
10. Identify the PSAP current staffing levels noting current staffing needs versus recommended staffing

PSAP Data Collection – Data Elements and Survey Details – cont'd

11. Identify the CAD (Computer Aided Dispatch) system, if any, in use, manufacturer, and interface capability
12. Identify any CAD system maintenance requirements
13. Identify any CAD system link to a GIS system
14. Identify the type of GIS system and the availability and type of layers utilized
15. Identify the maintenance requirements and responsibilities of the GIS system
16. Identify any PSAP – PSAP transfer capability noting the ability to transfer voice and data
17. Identify the physical location of the PSAP
18. Identify the Back up PSAP plan
19. Determine and report any use of a SALI (Stand Alone ALI database) by a PSAP
20. Identify the availability of MDTs (Mobile Data Terminals)
21. Identify the radio capability used by the PSAP for dispatching 911 call

Expanded Survey Categories

- General PSAP information
- Network information
- CPE and systems information
- Operational information
- Facilities information
- Statistical information
- Financial information
- Contact information

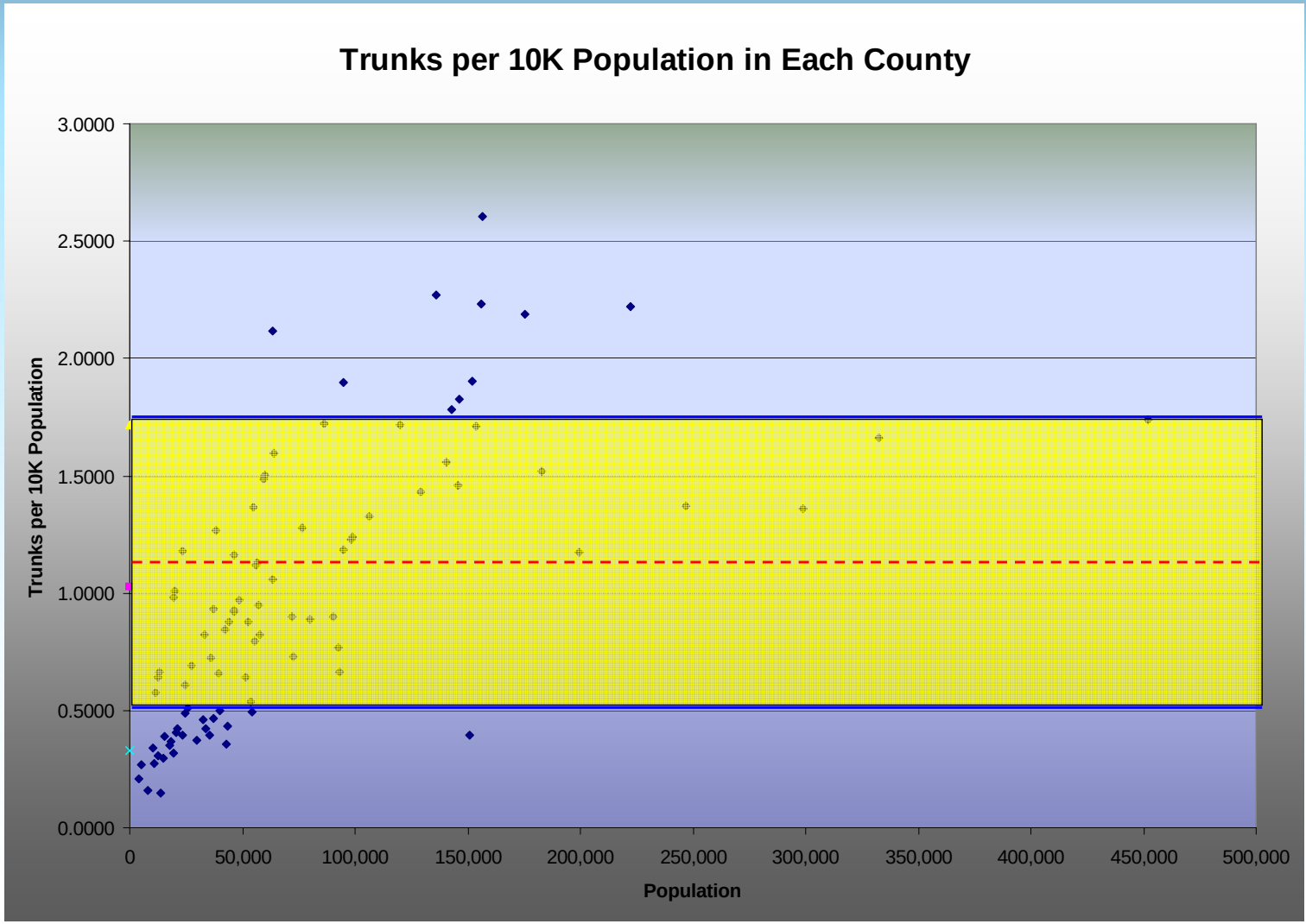
Number of Service Lines

- Survey included 186 PSAPs
  - 128 Primary
  - 53 Secondary
  - 5 Military
- 140 responded with trunk counts (123 Primary)
- Total trunk inventory is 829
- Largest non-military PSAPs (18 trunks each):
  - Durham Emergency Communications Center
  - Guilford Metro 9-1-1
  - Meadowood Communications Center

Number of Service Lines

- 128 Primary PSAPs + 3 Military Primary PSAPs
  - High = 32
  - Low = 2
  - Average = 6
- Average trunks per 10K population = 1.0467
- Ratio used to identify counties that may warrant additional trunks

Primary PSAP Trunks compared to Population in County



Number of Console Positions

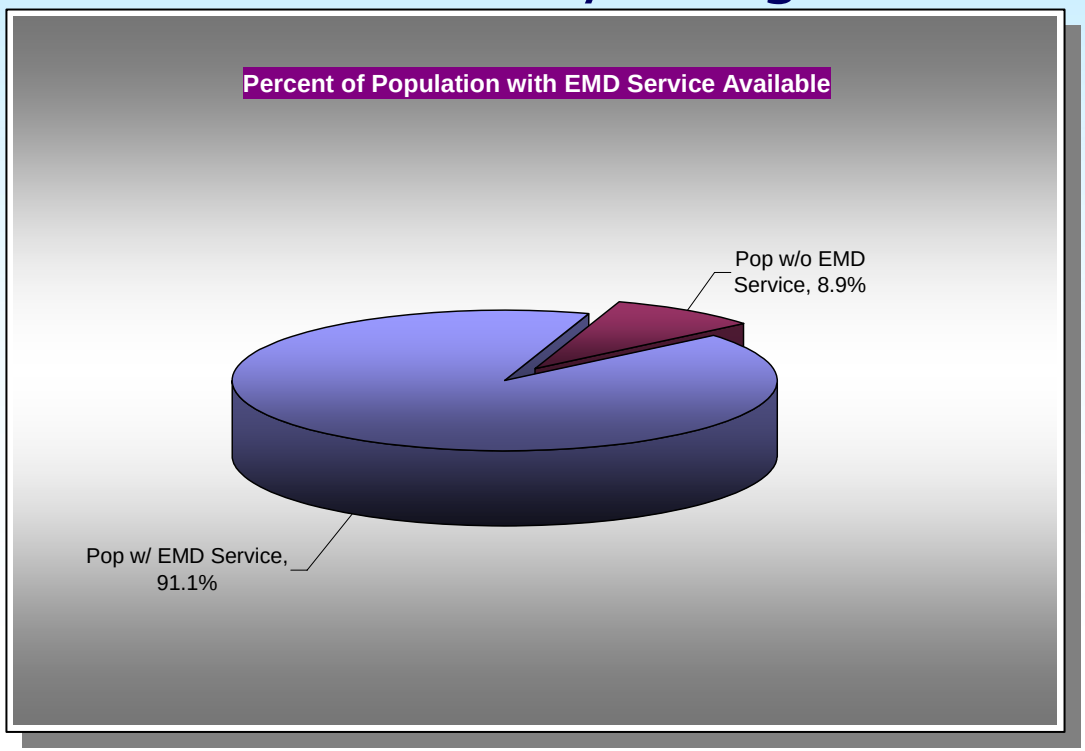
- Total consoles = 789
  - 769 at public PSAPs
  - Charlotte-Mecklenburg PD = 27
  - 12 PSAPs with 1 position (4 are Primary)
- 623 consoles in 128 Primary PSAPs
  - Average = 5
- Aggregated at county level (primary and military)
  - Average per 10K Population = 1.1925
  - 13 Counties above standard deviation suggest less than average # positions to population
- Average population served by # Positions

Average Population Served by # Positions

# Positions	Avg. Population	# Counties
1	8,639	3
2	14,095	7
3	26,169	21
4	47,222	14
5	68,147	14
6	95,822	11
7	62,629	4
9	92,220	7
10	122,603	2
>10	268,881	16

PSAPs with EMD Ability

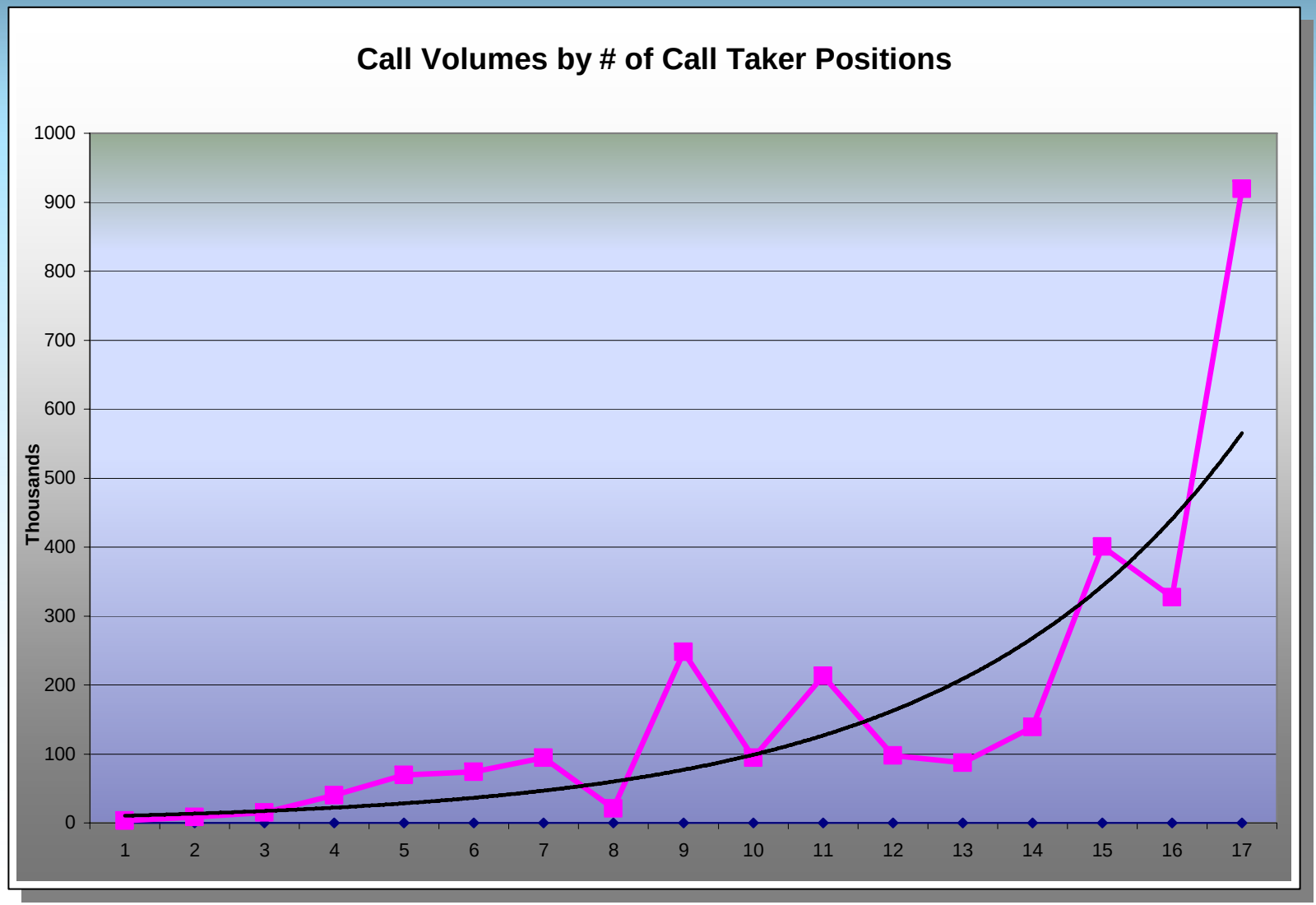
- Of 186 PSAPs, 82 reported having implemented EMD protocols
- 72 counties (73 %) use EMD Dispatch protocols
- 27 counties not currently using EMD



Number of 9-1-1 Calls Annually

- 140 PSAPs reported call volume stats
- Total of 7.4 million calls annually
- Average 617,000 monthly
- Average calls per PSAP = 54,807 (annual)
- High = 919,245 (Charlotte-Mecklenburg PD)
- Approx. 25% of PSAPs unable to report stats
  - Useful when planning for staffing levels and headcount justifications
  - Prediction staff requirements by shift and day of week
  - Call duration metrics factor into decisions for additional positions and trunking

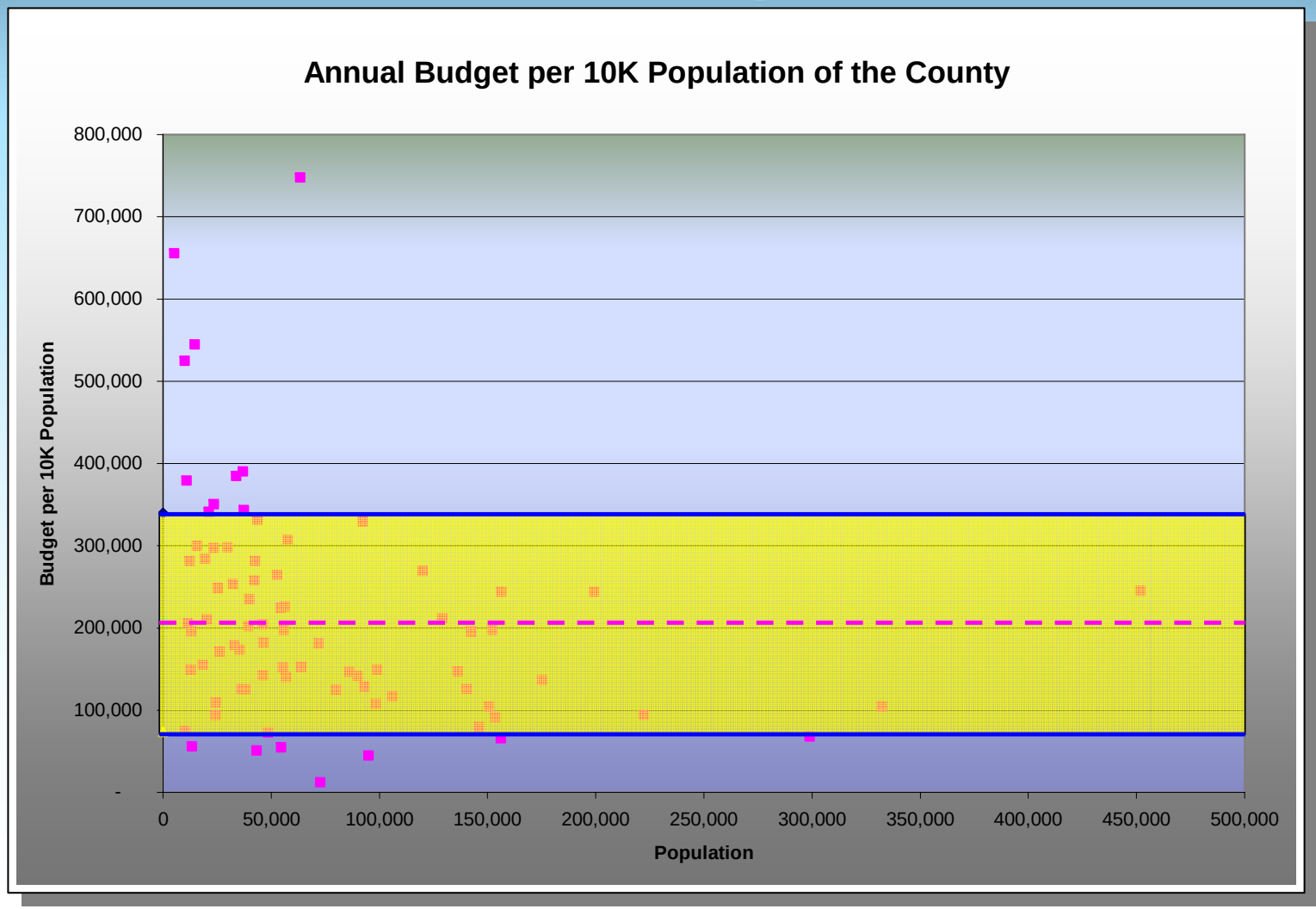
Average Call Volume by # Positions



PSAP Operational Budgets

- 105 PSAPs responded with budgetary data
- Sources primarily from 9-1-1 surcharges, supplemented from general fund
- Annual budgets range from $40,800 to $9 million
- Average = $1.074 million
- At county level:
  - Average = $1.41 million
  - $206,728 per 10K population
  - Standard deviation from $74K to $340K per 10K population

Annual Budget per 10K Population in County



Carrier Findings and Analysis

- Data Collection Method
- Overview of 9-1-1 Network in North Carolina
- LEC 9-1-1 Service Provider Selective Routers in North Carolina
- Selective Router Connectivity
- Tandem-to-Tandem Access
- Next Generation Capabilities of Existing Selective Router Platforms Used in North Carolina
- Internet Protocol (IP) versus Legacy Connections
- Automatic Location Identification (ALI) Data Access
- Service Provider's Funding Models

GIS Findings and Analysis

- Available GIS Resources within Each County
- Available North Carolina GIS Resources within Each State Agency
- Needs, Benefits, and Challenge: Implementing Statewide Centralized 9-1-1 GIS Database
- Centralized 9-1-1 GIS Database Interface and Access Requirements
- GIS Recommendations

Business Requirements Findings and Analysis

- FCC and Other Federal 9-1-1 Requirements
- Current North Carolina 9-1-1 System: Meeting or Exceeding FCC Requirements
- Need for Statewide 9-1-1 Coordination
- Need for Technical or Operational Standards
- The Cost of Implementing the Comprehensive State 9 1 1 Plan

Next Generation 9-1-1 Architecture

- The Landscape for 9-1-1
- Current Situation and Challenges
- What is NG9-1-1?
- Next Generation Architecture Needs Analysis
- Summary of NG9-1-1 Architecture Alternatives and Considerations

Future Funding Analysis and Recommendations

- Current 9-1-1 Funding Models
- Future Funding Sources

Discussion – Q/A